

0046

Canyon Fuel Company, LLC
Dugout Canyon Mine
P.O. Box 1029
Wellington, Utah 84542



June 8, 2006

Ms. Pamela Grubaugh-Littig
Utah Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Salt Lake City, UT 84114-5801

Travis
C/007/0039

RE: Addressing Deficiencies Refuse Pile Expansion Amendment – Task ID #2418
Dugout Canyon Mine, Canyon Fuel Company, LLC, C/007/039, Carbon County, Utah

Dear Ms. Grubaugh-Littig:

Attached please find four copies of information to address deficiencies associated with the refuse pile expansion.

R645-301-121.200 – Addressed in Chapter 1 on Page 1-9. This is a deficiency which when approved will be incorporated into the M&RP.

R645-301-233 – This has been addressed in RA Attachment 2-2 and in Sections 224 and 233

R645-301-512.260 – Addressed in Section 512.200.

R645-301-533.252 – Addressed in Attachment 2-2 and Section 242.

R645-301-720, 730, 760 – Addressed in Attachment 7-3, Addendum A and Sections 721, 731, 732, 734, and 761.

A copy of this submittal has been delivered to the Price field office.

Thank you for your assistance and if you have any questions, please call me at (435) 636-2869.

Sincerely yours,

Vicky S. Miller

Vicky S. Miller

cc: Dave Spillman

SUFCO Mine

Skyline Mines

RECEIVED
JUN 09 2006
DIV. OF OIL, GAS & MINING
Dugout / Soldier Canyon Mines

APPLICATION FOR COAL PERMIT PROCESSING

Permit Change ☒ New Permit ☐ Renewal ☐ Exploration ☐ Bond Release ☐ Transfer ☐

Permittee: Canyon Fuel Company, LLC

Mine: Dugout Canyon Mine

Permit Number: C/007/039

Title: Addressing Deficiencies Refuse Pile Expansion Amendment - Task ID #2418

Description, Include reason for application and timing required to implement:

Instructions: If you answer yes to any of the first eight (gray) questions, this application may require Public Notice publication.

- ☐ Yes ☒ No 1. Change in the size of the Permit Area? Acres: _____ Disturbed Area: _____ ☐ increase ☐ decrease.
- ☐ Yes ☒ No 2. Is the application submitted as a result of a Division Order? DO# _____
- ☐ Yes ☒ No 3. Does the application include operations outside a previously identified Cumulative Hydrologic Impact Area?
- ☐ Yes ☒ No 4. Does the application include operations in hydrologic basins other than as currently approved?
- ☐ Yes ☒ No 5. Does the application result from cancellation, reduction or increase of insurance or reclamation bond?
- ☐ Yes ☒ No 6. Does the application require or include public notice publication?
- ☐ Yes ☒ No 7. Does the application require or include ownership, control, right-of-entry, or compliance information?
- ☐ Yes ☒ No 8. Is proposed activity within 100 feet of a public road or cemetery or 300 feet of an occupied dwelling?
- ☐ Yes ☒ No 9. Is the application submitted as a result of a Violation? NOV # _____
- ☐ Yes ☒ No 10. Is the application submitted as a result of other laws or regulations or policies?
Explain: _____
- ☐ Yes ☒ No 11. Does the application affect the surface landowner or change the post mining land use?
- ☐ Yes ☒ No 12. Does the application require or include underground design or mine sequence and timing? (Modification of R2P2)
- ☐ Yes ☒ No 13. Does the application require or include collection and reporting of any baseline information?
- ☒ Yes ☐ No 14. Could the application have any effect on wildlife or vegetation outside the current disturbed area?
- ☒ Yes ☐ No 15. Does the application require or include soil removal, storage or placement?
- ☒ Yes ☐ No 16. Does the application require or include vegetation monitoring, removal or revegetation activities?
- ☐ Yes ☒ No 17. Does the application require or include construction, modification, or removal of surface facilities?
- ☒ Yes ☐ No 18. Does the application require or include water monitoring, sediment or drainage control measures?
- ☐ Yes ☒ No 19. Does the application require or include certified designs, maps or calculation?
- ☐ Yes ☒ No 20. Does the application require or include subsidence control or monitoring?
- ☐ Yes ☒ No 21. Have reclamation costs for bonding been provided?
- ☐ Yes ☒ No 22. Does the application involve a perennial stream, a stream buffer zone or discharges to a stream?
- ☐ Yes ☒ No 23. Does the application affect permits issued by other agencies or permits issued to other entities?

Please attach four (4) review copies of the application. If the mine is on or adjacent to Forest Service land please submit five (5) copies, thank you. (These numbers include a copy for the Price Field Office)

I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments, undertakings, and obligations, herein.

David Spillman
Print Name

David Spillman, Engineering Manager
Sign Name, Position, Date

Subscribed and sworn to before me this 8 day of June, 2006

Vicky Sue Miller
Notary Public

My commission Expires: 1-5, 2008

Attest: State of UTAH } ss:
County of CARBON



For Office Use Only:

Assigned Tracking
Number:

Received by Oil, Gas & Mining

RECEIVED

JUN 09 2006

DIV. OF OIL, GAS & MINING

APPLICATION FOR COAL PERMIT PROCESSING

Detailed Schedule Of Changes to the Mining And Reclamation Plan

Permittee: Canyon Fuel Company, LLC

Mine: Dugout Canyon Mine

Permit Number: C/007/039

Title: Addressing Deficiencies Refuse Pile Expansion Amendment - Task ID #2418

Provide a detailed listing of all changes to the Mining and Reclamation Plan, which is required as a result of this proposed permit application. Individually list all maps and drawings that are added, replaced, or removed from the plan. Include changes to the table of contents, section of the plan, or other information as needed to specifically locate, identify and revise the existing Mining and Reclamation Plan. Include page, section and drawing number as part of the description.

DESCRIPTION OF MAP, TEXT, OR MATERIAL TO BE CHANGED[illegible]

Any other specific or special instruction required for insertion of this proposal into the Mining and Reclamation Plan.

4/8/06 The Refuse Pile Amendment is a stand alone document, separate from the M&RP.

Received by Oil, Gas & Mining

RECEIVED

JUN 09 2006

DIV. OF OIL, GAS & MINING

M&RP

June 2006

Chapter 1

Section 28: NW1/4, N1/2SW1/4, SW1/4SW1/4

Section 29: All

Section 30: E1/2, E1/2W1/2

Waste Rock Storage Facility

T. 14 S., R. 12 E., SLBM, Utah (Approximately 26.8 acres)

Section 18: Portions of NE1/4, SW1/4 and SE1/4 of the NE1/4

All of Lease ML-42648, except the E1/2 of Section 8 and the NE1/4 of Section 17, is included within the Dugout Canyon Mine permit boundary. However, only the S1/2 SE1/4 of Section 9 from Lease ML-42649 is within the permit boundary. The ten acres described in UTU-76601 are also described in UTU-77985. The U.S. Department of Interior, Bureau of Land Management (BLM) right-of-way application UTU-76601 is included in Appendix 1-3.

The disturbed area encompasses 20.31 acres (Mine Facility area, including Gilson well pad and small substation), 12.85 acres (G-2, G-3, G-4, G-5, G-6, G-7, G-9, G-10, G-11 and G-12 Degas Well), 2.7 acres (G-4, G-5 and G-6 Degas Well), 1.8 acres (Leach field/pipeline area), 2.7 acres (Pace Canyon Fan Facility) and 26.8 acres (Refuse Pile area) totaling approximately 64.5 acres. That acreage includes a pre- and post mining road with an area of 1.6 acres and 2.03 acres of undisturbed land within the mine facilities disturbed area and 11.2 acres within the refuse pile disturbed area.

The permit boundary encompasses approximately 9,471 acres which includes the following surface ownership and acreage: 10 acres in the BLM right-of-way, approximately 567 acres of other federal lands, 920 acres of state lands, and fee acreage of approximately 7,974 acres (Plate 1-1 and RA Plate 1-1).

Coal ownership acreage within the permit area includes approximately 2,804 acres of federal coal, approximately 5840 acres of state coal, and 827 acres of fee coal (Plate 1-2 and RA1-1B). Approximately 745 acres which include the surface subsidence area, refuse pile and leach field areas will not be mined although their acreage is included in the surface and coal ownership acreage totals.

Refuse Pile Amendment

June 2006

Canyon Fuel Company, LLC
Dugout Canyon Mine

Refuse Pile Amendment
~~January~~ **June** 2006

CHAPTER 2

SOILS

223 Soil Characterization

Daniel M. Larsen, Professional Soil Scientist, performed the soil survey described in this chapter and included as Attachment 2-1, in accordance with the standards of the National Cooperative Soil Survey.

224 Substitute Topsoil

All soil resources to be removed from the refuse pile site qualify as growth media but not as topsoil. However, CFC may use selected overburden materials as a substitute or supplement to the salvaged soil.

If necessary for reclamation of the refuse pile, substitute topsoil/growth medium will be salvaged from a borrow area approximately 3/4 mile southeast of the refuse pile. The borrow area is located on lands owned by the permittee (Portions of the E1/2 NE1/4 SW1/4, W1/2 SE1/4, Section 17, T14S R12E). The borrow area has sufficient soil, in addition to the soils previously salvaged or available for salvage at the refuse site to cover the refuse pile with 4 feet of material. **Refer to Section 233 and RA Attachment 2-3 for additional information.**

Prior to salvaging soil to cover the waste at the refuse pile, 12- inches of soil will be salvaged from the borrow area to be used to reclaim the borrow area. This soil will be stockpiled in berms around the area to be salvaged. An additional 24 to 40 inches of soil will then be salvaged from the borrow area and transported to the refuse pile site to be used as cover over the waste in preparation for reclamation.

At the borrow site the southwestern quarter will be salvaged first, followed by the northwestern quarter (SB1 thru SB5, Figure 2, RA Attachment 2-3). Only the quantity of soil necessary for reclamation will be removed from the borrow area, thus if sufficient substitute soil is available from these areas, the area containing sites SB6 thru SB9 shown on Figure 2 will remain intact and undisturbed. The soil salvage will be between gullies, the boundary of the borrow area on the southern, eastern and western edges are gullies as drawn on Figure 2, including a gully running

through the middle of the borrow area site separating samples sites SB1 thru SB5 from sites SB6 thru SB9 (Figure 2, RA Attachment 2-3).

230 OPERATION PLAN

231 General Requirements

231.100 Removing and Storing Soil Methods

The refuse pile area has been the site of activities since the early 1900's. At the time of the initial disturbances, topsoil was apparently not salvaged; however during the excavation of gravel in 1998 - 1999 some soil was salvaged. These salvaged soils will be included in the soil stockpiles for the refuse pile (RA Plate 2-2). The methods described for soil salvage herein will be followed when removing and storing soil resources currently in-place.

Soil salvage will take place at the beginning of site use for all areas within the disturbed area boundary to be used immediately. There is no disturbance planned for the areas designated as H and J on RA Plate 2-1 except for the area to be disturbed for the construction of the sediment pond emergency spillway. Topsoil and subsoil will be salvaged and stockpiled from the area disturbed during the construction of the spillway. The removal of salvaged soils will include all horizons, except in soils salvage areas H and J (RA Plate 2-1), where no salvage of soils is currently planned except as state above. These materials will be stored in a graded stockpiles and seeded to promote surface stabilization. The seed mix to be used will be the interim seed mix described in Chapter 3, Section 341.200. At the time of the 1999 Soil and Geotechnical Surveys, the area designated a "L" in the soil survey was described as being a pile of gravel (on top of the soil), the gravel has since been removed from the site (2002). The soils available for salvage in area "L" are assumed to be similar to those in area "M". As recommended by the Division under R645-310-232.500 of the October 24, 2002 Technical Analysis two piles have been created, one stockpile for topsoil and the second for subsoils. Areas D, E, F plus areas K and G designated on RA Plate 2-1 will be salvaged and placed in the topsoil pile. The majority of the salvaged topsoil

232.500 Subsoil Segregation

The soil horizons will be removed and stockpiled together during the construction of the site, as described in Section 234.

232.600 Timing

Soil removal will take place after all vegetation that could interfere with soil salvage has been removed.

232.700 Topsoil and Subsoil Removal Under Adverse Conditions

Due to the disturbed nature of the site, soil horizons will be removed together, except where natural conditions render operations hazardous or detrimental to soils outside the disturbed area.

Conventional Machines. In localities where steep grades, adverse terrains, severe rockiness, limited depth of soils, or other adverse conditions exist that render soil removal activities using conventional machines hazardous, soils will not be salvaged and stockpiled.

Substitute Topsoil. Importing of substitute topsoil may be required ~~depending upon the final height of the refuse pile~~, refer to Sections 224, 233 and 242.

233 Topsoil Substitutes and Supplements

**233.100 Overburden Materials Supplementing and/or Replacing
Topsoil**

Selected overburden materials may be used below the salvaged soils during reclamation operations, if sufficient soil materials are not available for the proposed reclamation activities. Where overburden materials are used, the operator commits to demonstrating to the Division prior

to salvaged soil emplacement that the overburden materials are non-toxic, non-acid forming, and non-combustible. Refer to Section 536.200 discussion of waste sampling/testing.

The mixing of coal waste and subsoil is discussed in Section 242 and RA Attachment 2-2.

233.200 Suitability of Topsoil Substitutes and Supplements

The description of the substitute topsoil from the borrow area is based on the following information: taxonomic classification, horizon name and depth, color, texture (percent sand, silt, and clay), consistence, structure, percent rock fragments and organic matter, saturation, pH, EC, SAR, and solubility of calcium, magnesium, and sodium. This information in the soil test pit logs and the lab data sheets are included in RA Attachment 2-3 of this submittal.

The material from the borrow area will be available should there be a need for supplemental topsoil/growth medium to reclaim the refuse pile. The analysis of the soil test pit samples indicate that the physical and chemical properties are comparable to the soils salvaged at the refuse pile site. The substitute topsoil/growth medium will be left in place and be utilized only if need for reclamation of the refuse pile site.

The depth and number of samples taken from each backhoe pit location (Soil Pits SB1 through SB9) can be found in RA Attachment 2-3 on the laboratory soil analysis report. The soil pit locations are shown on Figure 2, RA Attachment 2-3. Photographs of the pits and borrow area are located in RA Attachment 2-3.

A summary of the borrow area soil testing results and ratings are provided below:

PH - Samples rated from mildly alkaline to moderately alkaline, with a range of 7.6 to 8.4.

% Saturation - 42 samples rated good (25 to 46.4) and 1 sample in SB8 rated fair (23.8).

Electrical Conductivity - 24 samples rates good (0.22 to 1.90 umhos/cm) and 14 samples rated fair (2.12 to 4.83 umhos/cm) and 5 samples rated poor (5.39 to 12.2 umhos/cm).

Texture - 41 samples rated good (loam, sand loam and sandy clay loam) and 2 samples rated fair (silt loam and silty clay loam)

Boron - 36 samples rated good (0.12 to 0.45 ppm), 7 samples rated fair (0.51 to 1.14 ppm)

Selenium - 34 samples rated good (0.02 ppm or less), 9 samples rated fair (0.04 to 0.28)

Acid/Base Potential - All samples rated good (124 to 197 T/1000 tons).

Borrow Area Soil Salvage Procedures - The soil borrow area will only be impacted during the short period during which the refuse pile is being reclaimed. The top 12-inches of soil from the borrow area will be removed/salvaged and placed as berms surrounding the salvage area. Once the salvage of soil to reclaim the waste rock site has been completed, the soil from the borrow area stored in the berms will be replaced, deep gouged, mulched and seeded. These activities should insure adequate revegetation potential at the borrow area.

Refer to Section 224 and RA Table 2-2 for addition information about the borrow area.

233.300 Physical and Chemical Analyses

Topsoil substitutes and supplements may be used for the refuse site area. The laboratory soil analysis report for the borrow area is included in RA Attachment 2-3.

The rate of sampling for the overburden beneath the soil will be sampled as discussed in Section 536.200.

Certification of Reclamation Topsoil Suitability. The borrow area substitute topsoil was certified by an approved laboratory in accordance with at least one of the following: Soil

Conservation Service published data and technical guides, state agricultural agency, Tennessee Valley Authority, BLM - USFS published data, physical and chemical analyses results, field-site trials, or greenhouse tests.

233.400 Testing of Substitute Topsoil

Only the substitute topsoil used in lieu of, or in conjunction with, on-site overburden and soil will be tested as described in Section 233.300.

234 Topsoil Storage

Soils salvaged from the site will be stockpiled on the site. Refer to Plates RA 5-1 and 7-1 for the stockpile location. The estimated volumes of soil to be stockpiled are presented in RA Table 2-2.

234.100 Topsoil Stockpiling

Soil removed will be stockpiled for later use in reclamation operations when it is impractical to promptly redistribute the materials on regraded areas. Refer to Plates RA 5-1 and 7-1 for the location of the soil storage area. Because the soil salvage quantities are estimated, the actual contours and corresponding cross-sections are approximate. The final soil stockpiles will be reflected in the as-built drawings for the site. **RA Plate 2-2 will reflect as-built drawings of the stockpiles soils should they be moved to facilitate the expansion of the waste rock site. Once the expansion is completed the as-built drawings of the topsoil stockpiles will be submitted within six months.**

It is anticipated that the piles will be constructed in horizontal lifts of 1.5 to 2.0 feet. Tracked equipment will be used to reduce compaction. The stockpiles will be graded to a maximum slope of 2:1 and seeded to promote surface stabilization. The interim reclamation seed mix described in Chapter 3, Section 341.200 will be used for this purpose.

Reclamation of the site (soil redistribution, amendments, and stabilization) is discussed in Sections 242, 243, and 244, respectively.

242 Soil Redistribution

242.100 Soil Redistribution Practices

The stored soil will be redistributed after recontouring of the site has occurred during reclamation activities. The refuse pile will be covered with 1 foot of equally blended coal waste and subsoil, approximately 2.6 feet of subsoil and approximately 0.4 feet of topsoil, to obtain a total depth of cover on the pile of 4 feet. The volume of material needed to cover the refuse pile is 82,976 CY.

There are currently topsoil and subsoil stockpiles located in the northwestern portion of the site. Olympus Aerial Surveys estimated the volume in each stockpile as well as the volume of soil in the containment berms as:

Topsoil Stockpile volume = 7,298 CY

Subsoil Stockpile volume = 6,508 CY

Berm volume = 2,686 CY

An additional 6,317 CY of subsoil has been stripped from the site since construction of the original stockpiles. Total cover material currently available in the stockpiles is estimated to be 22,809 CY

When the topsoil and subsoil stockpiles are moved to facilitate the expansion of the refuse pile additional subsoil may be excavated from the northwest portion of the site. The volume of material is estimated to be 5,400 CY.

During reclamation the berms and embankments that create the perimeter ditches and sediment pond will be pulled back to blend the undisturbed areas into the reclaimed refuse pile. This process will generate approximately 2,947 CY of additional cover material. The total available cover material at the refuse site is 31,156 CY

To reduce the volume of imported cover material the bottom foot of cover material will be a blend of coal waste and subsoil. Equal portions of coal waste and subsoil will be used to create this blended cover material. Thus, the volume of available cover material may be increased by 10,372 CY (560,088 ft² x 0.5 ft / 27 ft³/CY) to a total of 41,528 CY.

Volume of cover material to be imported = 82,976 – 41,528 = 41,448 CY

Summary of Volumes

Volume of material needed to obtain 4 feet of cover = 82,976 CY

Total cover material available at the site = 31,156 CY

Vol. of coal waste blended with sub-soil to produce the first foot of cover = 10,372 CY

Vol. of subsoil blended with coal waste to produce the first foot of cover = 10,372 CY

Volume of subsoil and topsoil needed to cover the pile = 72,604 CY

Volume of cover material to be imported from borrow site = 41,448 CY

~~The exact quantity of the salvageable soil available for use is not known at this time, but has been estimated to be approximately 15,511 CY of subsoil currently salvaged (includes stockpile berms). The approximate salvaged soils from the refuse pile site are: topsoil stockpile volume 7,298 CY, subsoil stockpile volume 6,508 CY, berm volume 2,686 CY and second subsoil stockpile volume 6,317 CY equaling 22,809 CY available for site reclamation. 7,298 CY of topsoil salvaged. There is the potential for an additional 5,400 CY of subsoil to be salvaged from beneath the current soil stockpiles. This subsoil will be salvage and stockpiled when and if the soil piles are relocated. During reclamation the destruction of the berms and embankments that create the perimeter ditches and sediment pond will generate approximately 12,900 2,947 CY of additional cover material. The total available cover material at the refuse site is 31,156 CY (approximate).~~

Soils will be handled when they are in a loose or friable condition. The moisture content will be visually monitored and water will be added as needed to enhance the soil's condition for handling.

Canyon Fuel Company, LLC
Dugout Canyon Mine

Refuse Pile Amendment
June 2006

RA ATTACHMENT 2-2
SOIL VOLUME CALCULATIONS

Reclamation Soil Thickness Dugout Refuse Pile Site

The Refuse Pile is to be covered with 1 foot of equally blended coal waste and subsoil, approximately 2.6 feet of subsoil and approximately 0.4 feet of topsoil, to obtain a total depth of cover on the pile of 4 feet. The volumes of subsoil and topsoil needed to cover the pile are discussed below.

Area covered by the refuse pile = 516,552 ft²

To obtain the surface area to be covered by soil the above area must be adjusted to account for the 2:1 slopes of the refuse pile. A 2:1 slope increases the surface area by 11.8%.

Slope area = 368,950 ft²

Area of flatter space on top of the pile = 147,602 ft²

Adjusted slope area = 1.118 x 368,950 ft² = 412,486 ft²

Adjusted surface area of the pile to be covered = 560,088 ft²

The refuse pile will be covered with 4 feet of cover material. The cover material will consist of topsoil, subsoil, and a blend of coal waste and subsoil.

The volume of material needed to cover the refuse pile = 82,976 CY

Available Cover Material

There are currently topsoil and subsoil stockpiles located in the northwestern portion of the site. These stockpiles have been surrounded by a full containment berm. Olympus Aerial Surveys estimated the volume in each stockpile as well as the volume of soil in the containment berms.

Topsoil Stockpile volume = 7,298 CY

Subsoil Stockpile volume = 6,508 CY

Berm volume = 2,686 CY

An additional 6,317 CY of subsoil has been stripped from the site since construction of the stockpiles.

Total cover material currently available to be placed in the new stockpiles = 22,809 CY

When the topsoil and subsoil stockpiles are moved to facilitate the expansion of the waste rock site additional subsoil may be excavated from the northwest portion of the site. The volume of material available to be stripped has been estimated to be 5,400 CY.

During reclamation the berms and embankments that create the perimeter ditches and sediment pond will be pulled back to blend the undisturbed areas into the reclaimed refuse pile. This process will generate approximately 2,947 CY of additional cover material.

Total available cover material = 31,156 CY

To reduce the volume of imported cover material the bottom foot of cover material will be a blend of coal waste and subsoil. Equal portions of coal waste and subsoil will be used to create this blended cover material. Thus, the volume of available cover material may be increased by 10,372 CY ($560,088 \text{ ft}^2 \times 0.5 \text{ ft} / 27 \text{ ft}^3/\text{CY}$) to a total of 41,528 CY.

The mixing of coal waste and subsoil, to produce the first foot of cover for the refuse pile, will occur only if the coal waste has been demonstrated through sampling and analysis to not be acid or toxic forming. Otherwise the entire 4 feet of cover material will be composed of subsoil and topsoil.

Volume of cover material needing to be imported = $82,976 - 41,528 = 41,448 \text{ CY}$

Summary of Volumes

Volume of material needed to obtain 4 feet of cover = 82,976 CY

Total cover material available at the site = 31,156 CY

Vol. of coal waste blended with sub-soil to produce the first foot of cover = 10,372 CY

Vol. of subsoil blended with coal waste to produce the first foot of cover = 10,372 CY

Volume of subsoil and topsoil needed to cover the pile = 72,604 CY

Volume of cover material to be imported from borrow site = 41,448 CY

Soil/Waste Rock Mixing Procedure

Depending on conditions there are many ways that the imported soil and coal waste can be effectively mixed. Examples of methods that may be used are:

1. Mixing with a tractor mounted tiller or similar equipment. On flatter areas of the pile a 6-inch layer of soil will be spread on the surface and then tilled with the coal waste to a depth of 12-inches. This tilled material may be left in place and the additional 3-feet of soil placed on top or the mixed material may be pushed onto the slopes as the initial 12' inches of soil cover;
2. Mixing with an excavator or front end loader. Equal amounts of soil and coal waste will be dumped on the surface of the pile and mixed together using an excavator or front end loader. A dozer will then push the mixture onto the surface of the pile in a 12-inch layer;

3. Loading equal amounts of coal waste and soil into a dump truck. Trucks hauling soil to the site can be loaded with an equal amount of coal waste. Mixing will occur as the material is being loaded as well as when the load is dumped. Additional mixing will occur when the mixture is pushed out over the pile by a dozer; and
4. Mixing with a dozer. A 6-inch layer of soil can be spread on the surface of the pile and then a dozer will push the soil and 6-inches of coal waste into a pile. The rolling action of the material in front of the dozer blade will mix the soil and coal waste. Additional mixing will occur as the material is pushed back out in a 12-inch layer.

Canyon Fuel Company, LLC
Dugout Canyon Mine

Refuse Pile Amendment
~~June~~ January 2006

CHAPTER 5
ENGINEERING

512.200 Plans and Engineering Designs

All plans and engineering designs presented in this submittal were prepared by or under the direction of and certified by a qualified registered professional engineer.

Excess Spoil. No excess spoil will be generated from the refuse pile area.

Durable Rock Fills. No durable rock fills will exist in the refuse pile area.

Coal Mine Waste. If coal mine waste is generated by the Dugout Canyon Mine, it will be placed in the refuse pile site.

Impoundments. A sedimentation pond impoundment was built in the refuse pile area (see Section 732).

Primary Roads. The access road to the refuse pile and the temporary road to construct the refuse pile are classified as primary roads.

Variance From Approximate Original Contour. CFC ~~does not~~ request a variance from the approximate original contour requirements of the regulations for this site. ~~The proposed configuration of the site will comply with the post-mining land use and blend into the surrounding area. The main reason for the variance is that placement of refuse will raise the site topography by approximately 60 feet. The justification for the request is that the site was previously disturbed by the removal of in-place topsoil and gravel. This site functioned as a gravel pit and was used for the construction of the road from Soldier Canyon Road to the Dugout Canyon Mine. After completion of the refuse pile construction, the site will be reclaimed. Additional justification is included in the remainder of this submittal.~~

CHAPTER 7

HYDROLOGY

720 ENVIRONMENTAL DESCRIPTION

721 General Requirements

This section presents a description of the pre-mining hydrologic resources within the permit and adjacent areas that may be affected or impacted by the proposed coal mining and reclamation operation.

Reference RA Attachment 2-3 for soil information, pictures and drawings and RA Attachment 7-3, Addendum A for hydrologic information pertaining to the soil borrow area to be used for reclamation of the refuse pile.

722 Cross Sections and Maps

722.100 Location and Extent of Subsurface Water

No seeps or springs are present in the immediate area of the refuse pile site. Three monitoring wells were installed in the site area (see RA Plate 7-1). The completion details of these wells are discussed in Chapter 6, RA Attachment 6-1 of this submittal.

722.200 Location of Surface Water Bodies

Dugout Creek is located to the east of the refuse pile between an 1/8 and 1/4 of a mile. Due to the distance to the creek, no impact to this stream is anticipated.

722.300 Locations of Monitoring Stations

Two surface water monitoring stations have been located for the refuse pile area (see RA Plate 7-1). These stations are discussed in Section 731 of this submittal.

730 OPERATION PLAN

731 General Requirements

731.100 Hydrologic-Balance Protection

Groundwater Protection. The affect on groundwater in this area is expected to be minimal as discussed in Section 724.200. Groundwater will not be encountered or used during construction, maintenance, and reclamation of the refuse pile. The three wells that have been drilled in this area are used to aid in monitoring the potential impacts of the refuse pile.

Surface Water Protection. To protect the hydrologic balance, construction, maintenance, and reclamation operations will be conducted to handle earth materials and runoff in a manner that prevents, to the extent possible, additional contributions of suspended solids to streamflow outside the permit area, and otherwise prevents water pollution. Additionally, CFC will maintain adequate runoff- and sediment-control facilities to protect local surface waters.

During initial construction and prior to installation of all runoff- and sediment-control facilities, silt fences were installed along the down gradient edge of the refuse pile area. These silt fences were installed in accordance with the approved M&RP. If required for control of local erosion, straw-bale dikes may also be installed at the site during initial construction. The silt fences and straw-bale dikes will be periodically inspected, and accumulated sediment will be removed as needed to maintain functionality. Once the diversion ditches are installed, the silt fences and straw-bale dikes will be removed.

The initial placement of waste rock will take place in an area lower than the existing surrounding grade. The operator will construct the appropriate ditches adjacent to and upstream of the growing pile once the surface of the pile meets and exceeds the level of the surrounding existing ground

surface. Prior to construction of the ditches, a temporary interim berm will be constructed upstream of the below-grade storage area to divert water to the sediment pond (RA Plate 7-1)

Once the runoff- and sediment-control facilities outlined in Section 732 have been installed, these structures will prevent additional contributions of suspended solids to streamflow outside the permit area. A description of sediment control following reclamation is presented in Sections 540 and 760 of this submittal and the approved M&RP.

Reference RA Attachment 7-3, Addendum A for hydrologic information pertaining to the soil borrow area.

731.200 Water Monitoring

Groundwater Monitoring. Groundwater monitoring associated with the refuse pile will include quarterly water level measurements. In accordance with Table 7-4, Groundwater Monitoring Program of the approved M&RP, Wells DH-1, DH-2 and DH-3 will be monitored using Protocols A, 1. Water quality samples will be obtained quarterly from DH-1 beginning in the first quarter of 2003 and ending the 4th quarter of 2004. Thereafter, a water quality sample from DH-1 will be taken annually, until bond release. The samples from DH-1 will be analyzed for the parameters listed in Table 7-4, "Groundwater Monitoring Program". At least one borehole volume of water will be removed from the well prior to obtaining the water sample for analysis. Water level data collected through the first quarter of 2002 are presented in RA Attachment 7-1.

Should the subsoil stockpile be moved to the area of Well DH-2, the casing will be elevated above the stockpile to allow for continued monitoring (RA Plate 7-1).

Surface Water Monitoring. Two surface water monitoring sites are located in the refuse pile area (see RA Plate 7-1). These stations are located on the ephemeral drainage to the west and southwest of the pile. One point is located upstream of the pile, while the second point is located downstream of the site at the county road crossing. These stations are monitored to evaluate surface-water conditions upstream and downstream from the pile. The stations will be monitored

Stream Channel Diversions. No stream channel diversions are planned for this site.

Buffer Zone Designation. No buffer zone designation is necessary at this site.

731.700 Cross Sections and Maps

RA Plate 7-1 shows the location of each monitoring station and the watershed boundaries for the area watersheds. RA Plate 7-1 shows the proposed location of the diversion ditches and culverts and sediment pond associated with the refuse pile area. RA Plate 7-2 presents the design details of the sediment pond with appropriate cross sections of the pond and embankment.

731.800 Water Rights and Replacement

No surface or groundwater sources are located within the refuse pile area.

732 Sediment Control Measures

The sediment control measures within the refuse pile area have been designed to prevent additional contributions of sediment to stream flow or to runoff outside the permit area. In addition, they have been designed to meet applicable effluent limitations, and minimize erosion to the extent possible.

The structures to be used for the runoff-control plan for the permit area include disturbed and undisturbed area diversion channels, a sedimentation pond, berms, silt fences, and road diversions and culverts.

Reference RA Attachment 7-3, Addendum A for hydrologic information pertaining to the soil borrow area.

734 Discharge Structures

Discharge structures within the refuse pile area will consist of the emergency spillway on the sedimentation pond. All discharge structures will be constructed and maintained to comply with R645-301-744.

Reference RA Attachment 7-3, Addendum A for hydrologic information pertaining to the soil borrow area.

735 Disposal of Excess Spoil

There will be no excess spoil generated in the refuse pile area.

736 Coal Mine Waste

Coal mine waste generated by the Dugout Mine, will be stored and disposed of as described in Chapter 5 of this submittal.

737 Noncoal Mine Waste

Noncoal mine waste will be stored and disposed of as described in Chapter 5 of the approved M&RP.

738 Temporary Casing and Sealing of Wells

Each groundwater monitoring well identified on RA Plate 7-1 will be operated and maintained as described in Section 748.

740 DESIGN CRITERIA AND PLANS

741 General Requirements

752.200 Road Drainage

Runoff from temporary roads will be treated through siltation structures which will be located, maintained, constructed and reclaimed according to plans and designs presented in Sections 732, 742, and 763 of this submittal and the approved M&RP.

753 Impoundments and Discharge Structures

Impoundments and discharge structures will be located, maintained, constructed and reclaimed as described in Sections 733, 734, 743, 745, and 760 of this M&RP.

754 Disposal of Excess Spoil, Coal Mine Waste and Noncoal Mine Waste

Disposal areas for coal mine waste and noncoal mine waste will be located, maintained, constructed and reclaimed as described in Sections 736, 737, 746, 747, 760 and Chapter 5 of this submittal and the approved M&RP.

755 Casing and Sealing of Wells

All wells will be managed as described in Sections 551, 748 and 765 of this submittal.

760 RECLAMATION

761 General Requirements

A detailed reclamation plan for the mine is presented in Section 540. In general, CFC will ensure that all temporary structures are removed and reclaimed. Other than for restoration of natural drainage patterns, no permanent diversions are included in the reclamation plan. **Reference RA Attachment 2-3 for soil information, pictures and drawings and RA Attachment 7-3, Addendum A for hydrologic information pertaining to the soil borrow area.**

Canyon Fuel Company, LLC
Dugout Canyon Mine

Refuse Pile Amendment
June 2006

**RA ATTACHMENT 7-3, ADDENDUM A
TOPSOIL/SUBSOIL BORROW AREA**

Borrow Area Hydrology

When the refuse pile is reclaimed some of the cover material will come from the soil borrow area. The soil borrow area will only be impacted during the short period during which the refuse pile is being reclaimed. Reclamation of the site will occur immediately after the required volume of soil has been removed. The soil borrow area is a little under a mile from the refuse pile. The site has a gentle 3 to 4% slope to the south towards an incised ephemeral channel flowing to the southeast. The site is dry with limited vegetation typical of the area, namely, sage brush and grasses. Climatological information for the area can be seen in Appendix 4-1 of the approved M&RP and in RA Attachment 7-5.

Soil in the area is easily erodible as demonstrated by the gullies running through the site with depths ranging between 6 and 20 feet. Gullies in the area are typically 8 to 10 feet deep. The 20 foot deep gully through the site indicates that soil has a depth of at least 20 feet. The following sections discuss how degradation of groundwater and surface water will be avoided during soil removal activities and reclamation.

Groundwater

The effect on groundwater from soil removal activities is expected to be minimal. No springs are evident at the soil borrow area or in areas upgradient of the soil borrow area. The deep gullies at the site are dry. Thus, it can be concluded that groundwater is at least below the deepest gully, which is approximately 20 feet deep. Thus, groundwater at the site is well below the 3 to 4 foot depth of soil to be removed from the site and therefore will not be encountered during soil removal activities. Based on the monitoring wells around the refuse pile the depth to groundwater in this area can be expected to be 30 to 40 feet below ground surface. Since the only activity at the site will be soil removal, there is very little potential for groundwater impact. Therefore groundwater quality will not be monitored.

Surface Water

All of the drainages in the vicinity of the soil borrow area are ephemeral in nature and only flow in response to large storm events and snow melt. Runoff from areas upgradient of the soil borrow area are collected into gullies before reaching the soil borrow area. These gullies convey runoff through the site with some runoff flowing into the gullies from the soil borrow area. The watershed upgradient of the site is less than 60 acres in size. Thus, the gullies at the site represent ephemeral drainages according to the definition of an ephemeral drainage in the regulations.

To protect the hydrologic balance, soil removal activities and reclamation activities will be conducted in a manner that prevents, to the extent possible, additional contributions of suspended solids to streamflow outside the permit area, and otherwise prevent water pollution. During soil removal activities and reclamation CFC will maintain adequate runoff- and sediment-control facilities to protect local surface waters.

Access to the soil borrow area will require the crossing of a channel. This channel flows only in

response to storm events or snow melt. A broad swale will be constructed to cross the drainage. Soil removal activities will only occur if the channel is dry. To facilitate removal of the soil and to reduce sediment from the swale, the swale may be covered with clean gravel. Soil removed to create the swale will be replaced to the extent possible during reclamation. However, the drainage has vertical sides in most places but the soil can only be replaced to a maximum slope of 2:1. The swale crossing will be reclaimed such that there are no sharp changes in slope or direction. The reclaimed slopes of the swale will be deep gouged and seeded following regrading. The reclaimed channel will have the same bottom width as the undisturbed channel and will be composed of the same material as the rest of the channel. The undisturbed channel is composed of the same soil as that being removed with an occasional rock. The reclaimed swale will be more stable than the undisturbed channel due to the side slopes being laid back rather than being vertical.

During soil removal and reclamation activities a combination of sediment control methods will be used. Before commencing any soil removal activities silt fences will be installed down gradient of any areas to be disturbed. After installation of the silt fences the top twelve inches of soil will be pushed into berms around the site. These berms will contain runoff that falls within the borrow area and will divert upgradient runoff around the borrow area. The removal of 3 to 4 feet of soil from the site will, by the nature of the activity, create a depression that will contain the runoff from inside the soil borrow area. The silt fences will be maintained during soil removal activities to provide sediment treatment in addition to the berms and depression.

To minimize the impact to the site the soil will be removed from between the gullies running through the site. Thus, the current drainage pattern will not be impacted by soil removal activities. The gullies on either side of the soil borrow area are much deeper than the expected soil excavation depth. Therefore, after 3 to 4 feet of soil is removed, the site will be regraded to drain towards the one of the existing gullies. By removing soil in this manner no reclamation drainages will need to be constructed.

During reclamation the silt fences will be removed during final grading. Once the silt fences are removed the site will be deep gouged, mulched and seeded as soon as possible. The silt fences will not be removed if a storm is expected in the time between when the silt fences are removed and when the site can be deep gouged. Deep gouging has been demonstrated to be very effective at controlling sediment from reclaimed sites, especially from relatively flat sites such as this. The deep gouges will also promote revegetation of the site.